

Syntex-Verona
#100007452154
1.3
Bruce Williams
9/14/72
0751

Lawrence Co
3.500

5.8 Verona

September 14, 1972

Mr. James P. Murray
Geology Department
University of Missouri
Columbia, Missouri

Dear Jim:

Please find enclosed a copy of the lab analysis performed by Bruce Williams Laboratory on samples from the Hoffman-Taft lagoons and Erwin Springs. Since our records and files are always open to the public I see no reason why the data cannot be quoted, realizing of course that data is always open to scrutiny.

To bring you up-to-date somewhat on the Verona problem the industry abandoned the lagoons and began irrigation last year. This spring season found the Erwin Springs essentially clear and normal as well as Spring River. Also the one industry using Hexachlorophene apparently lost its market due to the Hexachloro scare and is no longer in business.

Hope this is satisfactory.

Yours truly,

Charles S. Decker, E.I.T.
Regional Engineer
Springfield Regional Office
Missouri Clean Water Commission

Enc.

CSD/cg

C.C. Central Office



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SUPERFUND RECORDS

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Information Gained from the Study of Other Related Systems

Five other blackwater systems were briefly examined to determine if information gained from the study of these systems could be applied to the Kohl Spring problem.

Two samples of blackwater from a landfill and possibly sewage induced system were collected from a spring immediately east of Jefferson Barracks, in Webster Groves, Mo. The samples are designated JB-1 and JB-2.

Four samples of water taken from sulfo-saline springs in Saline County, Missouri to study in particular, the carbon, nitrogen, and phosphorous concentrations found there. These samples are designated BL-1, BL-2, GUSW-1, and MCS-1. The geochemistry of this system has been studied by Carpenter and Miller (1969), and by Miller (1971). These samples correspond to Carpenter and Miller's samples number 21, another sample immediately adjacent to spring sample no. 21, now 10, and no. 16, 10, 11.

The alluvial groundwater system one mile north of Verona, Missouri, in Lawrence County, Missouri has been subjected to large amounts of organic contamination, and as a result, blackwater has been generated there as well.

In this case, the major source of contamination is believed to be several industrial waste lagoons which were visibly leaking waste materials into the subsurface. An analysis done by Bruce Williams Laboratories, Joplin, Missouri of industrial wastewater here reported the concentrations of calcium propionate to be 5268. mg/l, choline chloride to be 5340. mg/l and "sulfate" to be 10,580. mg/l. This analysis was obtained from Mr. S. Decker of the Missouri Clean Water

do we have permission to quote this?

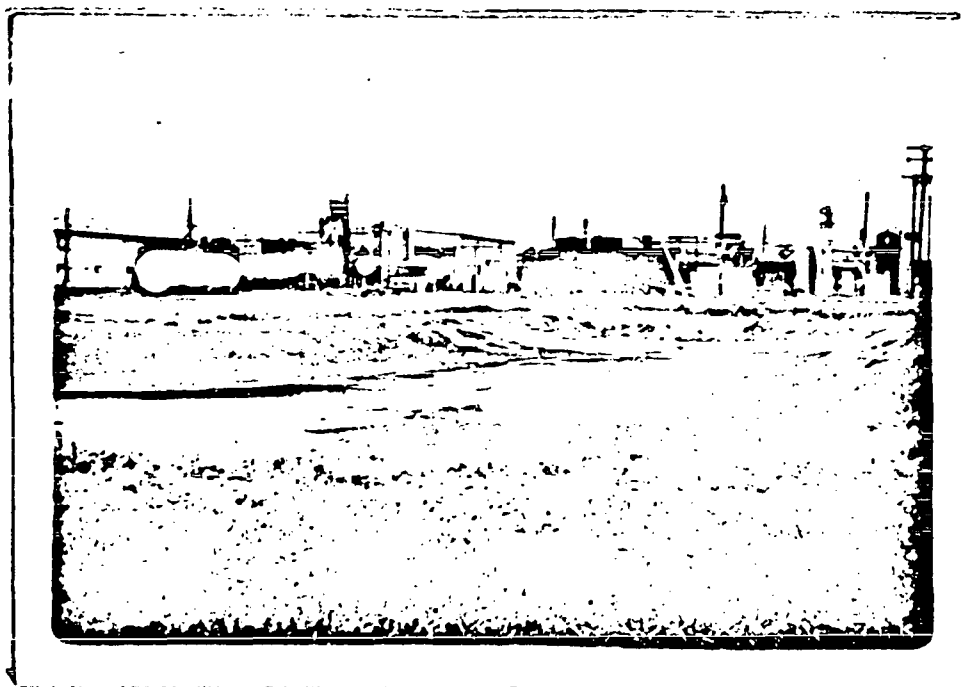


Plate 6.

Abandoned Industrial Waste Lagoon, Verona, Missouri

^{shows} Commission. Plate 6 ~~is a photograph of~~ one of the abandoned lagoons showing the volume of waste involved ^{blackening (due to sulfide precipitation?)} and ~~what appears to be sulfide precipitation (blackening)~~ on the sides and bottom of the lagoon. The problem of contamination here is also complicated by the addition from nearby towns of sewage into loosing streams.

Samples E-1, DOS-1, DOS-2, SBS-1, and SBS-2 were taken from black springs in the Verona area. Samples BRW-1, EW-1 and SBEW-1 were taken from relatively clean wells in this area to estimate background water quality.

^{black} Two spring systems known to be induced by sewage contamination were also briefly examined. One of them, ^(sample LS-1) Lewis Spring, was analysed for this thesis. The source of contamination here appears to be effluent from the city of Ellisville's large sewage lagoons and possibly septic tank sludge disposal in the loosing stream that receives the lagoon effluents. ~~It is a chemical~~

Rader Spring and Rader Sink are part of a Blackwater ~~spring~~ system that is induced predominantly by unremoved B.O.D. from a large sewage treatment facility. The details of this system are discussed by the U.S.D.I. (1969).

Two generalizations applicable to Kohl Spring were ^{the empirical observation} learned from these investigations. One was that whenever blackwater induced by man's activities was found, very substantial sources of organic carbon appeared to be involved.

Analyses of Rader Spring, Rader Sink, and Lewis Spring were plotted on figure 6, ~~the~~ relating them to ^{the} characterization ~~of the~~

of landfill leachate and sewage defined by the ratio of total phosphorous/inorganic nitrogen. Lewis Spring plotted clearly in the sewage range. Furthermore, there appeared to be essentially no change in the subsurface in the ratios found in the sewage treatment plant, ^{effluent,} Rader Sink, and Rader Spring. This empirically establishes the validity of applying this ratio in Kohl Spring as an indicator for its source of contamination.